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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/519,171	12/20/2004	Melissa Orme-Marmarelis	703538.4015	5295

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ORRICK, HERRINGTON & SUTCLIFFE, LLP
IP PROSECUTION DEPARTMENT
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EXAMINER

FEIGINS, KRISTAL J

ART UNIT	PAPER NUMBER
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2861

DATE MAILED: 08/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/519,171	ORME-MARMERELIS ET AL.	
	Examiner	Art Unit	
	K. Feggins	2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,2,6-15,17 and 18 is/are rejected.
- 7) ☒ Claim(s) 3-5 and 16 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>12/20/2004</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 6-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Filmore et al. (EP 0 039 772).

Filmore et al. disclose the following claimed limitations:

- * regarding claim 1, a capillary stream droplet generator (pg 6, fig 3);
- * a reservoir/fluid cavity, 22/;
- * an orifice/nozzle/ plate/26/ coupled to the reservoir/22/;
- * an orifice/nozzle/ coupled to the orifice plate/26/ and in fluid communication with the reservoir/22/ (fig 3);
- * a transverse disturbance generating member/24/ coupled to the orifice plate/26/ (fig 3).
- * regarding claim 2, wherein the disturbance generating member/24/ includes a piezoelectric crystal/24/ (fig 3).
- * regarding claim 6, wherein the orifice plate/26/ has a rectangular cross section (fig 3).

* regarding claim 7, a method/discloses by apparatus/ of generating droplets from capillary stream/30/ breakup comprising the steps of generating a capillary stream of material/30/, (pg 6, fig 3);

* applying a transverse disturbance to the stream/piezoelectric crystal, 24/, and forming droplets/46/ from the stream/30/ (fig 3).

* regarding claim 8, wherein the applying a disturbance step comprising exciting a piezoelectric crystal/24/ (fig 3).

* regarding claim 9, wherein the exciting step comprising applying a sine wave excitation to the piezoelectric crystal/24/ (fig, 3-10).

* regarding claim 10, wherein the exciting step comprising applying a square wave excitation to the piezoelectric crystal/24/ (fig, 3-10).

* regarding claim 11, wherein the generating a capillary stream comprising ejecting the material from an orifice/28/(fig 3).

* regarding claim 12, wherein the applying a disturbance step comprising vibrating/piezoelectric crystal vibrates/ the orifice/28/ in a direction orthogonal to an axis of the stream (fig 3).

* regarding claim 13, wherein the applying a disturbance step comprising exciting a piezoelectric crystal/24/ coupled to the orifice/28/ (fig 3).

3. Claim 15 & 17-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Yuan et al. (US 5609919).

Yuan et al. disclose the following claimed limitations:

- * regarding claim 15, a capillary stream droplet generator (Abstract)
- * a reservoir/container, 10/ adapted to hold molten metal/11/,
- * an orifice/15/ in fluid communication with the reservoir/10/, wherein the molten metal/11/ is ejected from the orifice/15/ to form a capillary stream/elongated discrete fluid segments, 20/,
 - * an acoustic wave generator/22, causes vibrations in the fluid/ adapted to direct a transverse acoustic wave/the vibration in the fluid/ to the capillary stream (col 6, lines 16-39, figs 1, 4, 4a & 5).
- * regarding claim 17, wherein the acoustic generator directs the transverse acoustic wave above a break-up point of the capillary stream (col 6, lines 16-39, figs 1, 4, 4a & 5).
- * regarding claim 18, wherein the orifice/15/ is formed in the bottom of the reservoir (figs 1, 4, 4a & 5).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Filmore et al. (EP 0 039 772) in view of Lin et al. (US 4,746,929).

Filmore et al. do not disclose the following claimed limitation:

* wherein the applying a disturbance step comprising applying a traverse acoustic wave to the capillary stream.

Lin et al. disclose the following claimed limitations:

* wherein the applying a disturbance step comprising applying a traverse acoustic wave to the capillary stream for the purpose of uniform breakup of the streams in terms of break off length.

It would have been obvious at the time of the invention was made to a person having ordinary skill in the art to utilize applying a traverse acoustic wave to the capillary stream, as taught by Lin et al. into Filmore et al. for the purpose of uniform breakup of the streams in terms of break off length.

Allowable Subject Matter


6. Claims 3-5 & 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Communication With The USPTO

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to K. Feggins whose telephone number is 571-272-2254. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patel Vip can be reached on 571-272-2458. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


K. FEGGINS
EXAMINER